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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,128

11/13/2003

Hung-Yu Chiu

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9922

7590

11/17/2004

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EXAMINER

OWENS, BETH E

ART UNIT

PAPER NUMBER

2824

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,128

Applicant(s)

CHIU ET AL.

Examiner

Beth E. Owens

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The informal drawings provided by Applicant are suitable for examination purposes, but must be replaced with formal drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because of legal phraseology in line 1: "disclosed". This objection may be overcome by replacing "disclosed" with --described--. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. The following Claims are objected to because of the following informalities:

Claim 1, lines 5, 7 and 9: please insert --patterned-- before "photoresist".

Claim 1, line 8: please insert --etched-- before "areas".

Claims 3 and 4 do not further limit the parent claim as they are identical.

Please cancel claim 4.

Claim 3, line 1: please delete "and".

Claims 11-13 and 20-22, line 1: please replace "An apparatus" with --The device--.

Claim 14, lines 2, 3 and 6; claim 15, line 2; claim 18, line 2: please replace "feature" with --layer-- for consistency throughout the claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 3, 5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the formation of 2 separate silicon nitride layers but does not distinctly label the first nor the second silicon nitride layers. This rejection may be overcome by inserting --first-- or --second-- before "silicon nitride" in the following manner:

claim 1, lines 4-6 and 9: please insert --first-- before "silicon nitride".

claim 1, line 12: please insert --second-- before "silicon nitride".

claim 2, lines 1 and 2: please replace "a silicon nitride" with --the second silicon nitride--.

claim 3, line 1: please insert --first-- before "silicon nitride".

claim 5, line 1: please insert --second-- before "silicon nitride".

claim 10, line 1: please insert --first-- before "silicon nitride".

6. Claims 14, 15, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 14 and dependent claim 18 recite the formation of 2 separate floating poly gate layers but do not distinctly label the first nor the second floating poly gate layers. This rejection may be overcome by inserting --first-- or --second-- before "floating poly gate" in the following manner:

claim 14, lines 1-5: please insert --first-- before "floating poly gate".

claim 15, lines 2 and 5: please insert --first-- before "floating poly gate".

claim 17, line 2: please insert --first-- before "floating poly gate".

claim 18, line 2: please insert --second-- before the first use of "floating poly gate".

claim 18, line 2: please insert --first-- before the second use of "floating poly gate".

claim 18, line 4: please insert --second-- before "floating poly gate".

Allowable Subject Matter

7. The following is a statement of reasons for the indication of allowable subject matter:

There is no available prior art nor obvious motivation to combine elements of prior art which teaches a method of forming a memory device having a self-aligned contact, comprising: providing a substrate having a floating gate dielectric layer formed thereon; forming a floating poly gate layer on the floating gate dielectric layer; forming a first silicon nitride layer on the floating poly gate layer; forming a patterned photoresist layer on the first silicon nitride layer; etching exposed areas of the first silicon nitride layer and the floating poly gate layer using the photoresist layer as an etch mask; forming an oxide layer over the exposed etched areas; removing the patterned photoresist layer and the first silicon nitride layer to expose the floating poly gate layer; forming poly spaces in the floating poly gate layer; and depositing a second silicon nitride layer over the poly spaces of the floating poly gate layer to form a self-aligned contact;

and:

A method of forming a memory device having a self-aligned contact, comprising: providing a substrate having a first floating poly gate layer and oxide features on source and drain sides of the first floating poly gate layer; forming poly spaces in the first floating poly gate layer; and depositing a silicon nitride layer over the poly spaces of the first floating poly gate layer to form a self-aligned contact.

8. The following prior art, which is considered pertinent to applicant's disclosure although not relied upon, includes "Semiconductor Memory Array of Floating Gate

Memory Cells with Low Resistance Source Regions and High Source Coupling” by Wang et al.; “Method for Fabrication a Flash Memory Device Self-Aligned Contact” by Chen et al. and “Floating Gates Having Improved Coupling Ratios and Fabrication Method Thereof” by Yang.

9. Claims 1-3 and 5-22 would be allowable if rewritten to overcome all objections and the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beth E. Owens, Ph.D., whose telephone number is 571.272.1882 and fax number for unofficial communications is 571.273.1882.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Richard Elms, can be reached on 571.272.1869. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306 for official communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571.272.2800.

Application/Control Number: 10/714,128
Art Unit: 2824

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Anh Phung

**ANH PHUNG
PRIMARY EXAMINER**